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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,029	03/19/2004	Bayram Arman	D-21407	6925

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PRAXAIR, INC.
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EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT	PAPER NUMBER
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3744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/804,029

Applicant(s)

ARMAN ET AL.

Examiner

William C. Doerrler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al (6,107,905) in view of either Basiulis or Nelson.

Itoh et al disclose applicant's basic inventive concept, a superconducting magnet system with a cryocooler 7 which cools shield 2 and a cryogen tank 5 cooling a heat pipe 30, substantially as claimed with the exception of using a wicking material in the heat pipe. Basiulis and Nelson each show this feature to be old in the cryogenic heat pipe art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of either Basiulis or Nelson to modify the

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cryogenic superconducting magnet cooling system of Itoh et al by using a wicking material in the heat pipe to ensure liquid distribution, which promotes proper functioning of the heat pipe.

Claims 2-6,8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al in view of either Basiulis or Nelson as applied to claims 1,2 and 7 above and further in view of Breneman.

Itoh et al disclose applicant's basic inventive concept, a superconducting magnet system with a cryocooler and a cryogen vessel with a heat pipe having a wicking material to cool the shield, substantially as claimed with the exception of using a helium bath to keep the superconductor at the proper temperature and using a multiple layer heat shield. Breneman shows these features to be old in the cryogenic superconductor cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of either Breneman to modify the cryogenic superconducting magnet cooling system of Itoh et al by using a helium bath to keep the superconductor at the proper temperature. In regard to claim 4, inner and outer shield 32 and 34 are mentioned in the written description of Breneman, with figure 1 showing more than 2 shield layers. In regard to claim 8, line 5 of column 4 of Brenman states that conductor 48 can be made from a thermally conductive aluminum alloy, which is seen as a bus bar.

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Claims 2-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al in view of either Basiulis or Nelson as applied to claims 1, 7 and 10 above and further in view of Lehmann et al.

Itoh et al, as modified, disclose applicant's basic inventive concept, a superconductor magnet cooling system with a cryocooler and a cryogen vessel used to cool a thermal shield, substantially as claimed with the exception of using a bus bar to provide thermal conduction in a superconductor cooler with a helium bath and a multiple layer thermal shield. Lehmann et al show bus bars to be old in the cryocooler art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Lehmann et al by using a bus bar to ensure efficient thermal conduction between the cryocooler and the heat shield. In regard to claims 3-6, Official Notice is taken that multi-layered heat shields are well known in the cryogen storage art and as such would have been obvious to an ordinary practitioner in the art to reduce the heat influx into the cryogen tank to preserve the cryogen in a liquid state.

Response to Arguments

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Itoh et al shows a system which uses a heat pipe to cool a superconducting coil. The heat pipe is formed such that the wicking material of the secondary references would enhance the heat transfer, not destroy the functioning of the device.


Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William C Doerrler
Primary Examiner
Art Unit 3744

WCD